UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,398	12/05/2003	William C. Moyer	SC13064TH	9268

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	**Applicant(s)**
Office Action Summary	10/728,398	MOYER ET AL.
	Examiner	**Art Unit**	
	Elmira Mehrmanesh	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2007*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-34* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This action is in response to a Pre-Appeal Brief conference request filed on July

27, 2007 for the application of Moyer et al., for "Apparatus and method for time ordering

events in a system having multiple time domains" filed December 5, 2003.

Claims 11-34 are pending in the application.

Claims 1-10 and 35-45 have been cancelled.

Claims 11-34 are rejected under 35 USC § 102.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-34 are rejected under 35 U.S.C. 102(b) as being anticipated by "The

Nexus 5001 Forum "Standard for Global Embedded Processor Debug Interface"

December 9, 1999, hereinafter "Nexus".

As per claim 11, Nexus discloses a system for time ordering events comprising:

a plurality of functional circuit modules, each functional circuit module being

clocked by a clock that represents a different time domain and having timestamping

circuitry (Page 13, Fig. 4-1), the timestamping circuitry providing a message that

indicates a point in time when a predetermined event occurs (note page 88, wherein

Nexus discloses "*Multi-Processor: The Nexus standard allows for embedded processor implementations that comprise multiple clients to utilize a single AUX, depending upon the transfer bandwidth requirement for the application. The AUX may be designated for a single client or shared by multiple clients on the embedded device during runtime. Messages transmitted via the AUX shall contain information defined by the Nexus standard indicating which client generated the message.")*

Also note page 87-88, Table 7-2 and Table 7-3, "*Independent clock allows for faster or slower transfer rate than with system clock reference.*"

an interface module coupled to each of the plurality of functional circuit modules (page 13, Fig. 4-1), the interface module providing control information to the plurality of functional circuit modules to indicate at least one operating condition that triggers the predetermined event (page 63, Message Occurrence), the interface module receiving at least one timestamping message from a first time domain when the predetermined event occurs in one of a plurality of time domains including the first time domain (page 63-64).

As per claim 12, Nexus discloses the interface module further comprises: storage circuitry for storing the control information (page 17) as programmable control information that determines the at least one operating condition that triggers the predetermined event (page 139, *Watchpoint Trigger (WT) Register*).

As per claim 13, Nexus discloses the at least one operating condition that triggers the predetermined event further comprises at least one of: entrance into or exit from a power mode of operation, a change in source of a clock, a change in clock periodicity, a predetermined change in a hardware counter value, entry into and exit from a debug mode of operation, and occurrence of at least one user programmable event (page 63-64).

As per claim 14, Nexus discloses the timestamping circuitry further comprises:

a counter for determining either absolute or relative time in a corresponding functional circuit module (page 54, Periodic Message Counter)

time domain identification circuitry for providing a time domain identifier; and clock status circuitry for providing one or more operating characteristics of a clock in the corresponding functional circuit module (page 87-88).

As per claim 15, Nexus discloses the timestamping circuitry further comprises circuitry for generating a code to be included in each message to identify a format of information included in a corresponding message (page 52, TCODE).

As per claim 16, Nexus discloses the interface module further comprises an arbiter having circuitry for generating a code to be included in each timestamping message to identify a format of information included in a corresponding timestamping message (page 55-56, TCODE).

As per claim 17, Nexus discloses the message provided by at least one of the

plurality of functional circuit modules has a format that comprises at least a time count

value that is an absolute value referenced to a known starting value, status information

of a clock signal associated with one of the functional circuit modules, and an identifier

that indicates a corresponding time domain associated with the timestamping message

(page 92, Figure 8-1, Figure 8-2, and page 94-96).

As per claim 18, Nexus discloses the message has a format that further

comprises a field that identifies that the format of the timestamping message has an

absolute value time count value (page 87, MCKO and page 92).

As per claim 19, Nexus discloses the message provided by at least one of the

plurality of functional circuit modules has a format that comprises at least a time count

value that is a relative value referenced to a last occurring predetermined event, status

information of a clock signal associated with one of the functional circuit modules, and

an identifier that indicates a corresponding time domain associated with the

timestamping message (page 87, MSEO and page 92).

As per claim 20, Nexus discloses the message has a format that further

comprises a field that identifies that the format of the timestamping message having a

relative value time count value (page 87, MSEO and page 92).

As per claim 21, Nexus discloses the timestamping message has a format that comprises a time count value corresponding to each of the functional circuit modules (page 87-88, Table 7-2 and Table 7-3) and predetermined status information associated with each of the functional circuit modules when the predetermined event occurs (page 55, Table 6-2, TCODE).

As per claim 22, Nexus discloses the control information is programmable (page 16, API).

As per claim 23, Nexus discloses the interface module further comprises: at least one register for storing the control information (page 17, Control Register).

As per claim 24, Nexus discloses the interface module provides timestamping messages from all time domains at a common interface port (page 13, Fig. 4-1).

As per claim 25, Nexus discloses the common interface port of the interface module meets IEEE ISTO 5001 (NEXUS) compliance (page 13, Fig. 4-1).

As per claim 26, Nexus discloses a system for time ordering events comprising:

a plurality of functional circuit module means, each functional circuit module being clocked by a clock that represents a different time domain and having timestamping circuit means (page 13, Fig. 4-1), the timestamping circuit means

providing a message that indicates a point in time when a predetermined event occurs

(note page 88, wherein Nexus discloses "*Multi-Processor: The Nexus standard allows*

for embedded processor implementations that comprise multiple clients to utilize a

single AUX, depending upon the transfer bandwidth requirement for the application. The

AUX may be designated for a single client or shared by multiple clients on the

embedded device during runtime. Messages transmitted via the AUX shall contain

information defined by the Nexus standard indicating which client generated the

message.")

Also note page 87-88, Table 7-2 and Table 7-3, "*Independent clock allows for*

faster or slower transfer rate than with system clock reference."

an interface module means coupled to each of the plurality of functional circuit

module means (page 13, Fig. 4-1), the interface module means providing control

information to the plurality of functional circuit module means to indicate at least one

operating condition that triggers the predetermined event (page 63, Message

Occurrence), the interface module means receiving at least one timestamping message

from a first time domain when the predetermined event occurs in one of a plurality of

time domains including the first time domain (page 63-64).

As per claim 27, Nexus discloses the timestamping messages from all time

domains are provided by interface module means at a common interface port means

(page 13, Fig. 4-1).

As per claim 28, Nexus discloses a system comprising: a plurality of functional circuit modules on a same integrated circuit (page 13, Fig. 4-1), each functional circuit module being clocked by a clock that represents a different time domain, and each functional module having timestamping circuitry operating at independent clock rates for providing timestamp messages (note page 88, wherein Nexus discloses "*Multi-Processor: The Nexus standard allows for embedded processor implementations that comprise multiple clients to utilize a single AUX, depending upon the transfer bandwidth requirement for the application. The AUX may be designated for a single client or shared by multiple clients on the embedded device during runtime. Messages transmitted via the AUX shall contain information defined by the Nexus standard indicating which client generated the message.*")

Also note page 87-88, Table 7-2 and Table 7-3, "*Independent clock allows for faster or slower transfer rate than with system clock reference.*"

As per claim 29, Nexus discloses the timestamp messages each indicate a point in time when a predetermined event occurs (page 63-64).

As per claim 30, Nexus discloses an interface module means coupled to each of the plurality of functional circuit module means (page 13, Fig. 4-1), the interface module means providing control information to the plurality of functional circuit module means to indicate at least one operating condition that triggers the predetermined event (page 63, Message Occurrence), the interface module means receiving at least one timestamping

message from a first time domain when the predetermined event occurs in one of a

plurality of time domains including the first time domain (page 63-64).

As per claim 31, Nexus discloses a method of reconstructing time ordering of

events that occur in multiple time domains in a system, the method comprising:

receiving multiple timestamping messages in one of an ordered time sequence

and an unordered time sequence (page 54, Periodic Message Counter); tracking

relative count values of multiple time domain counters (page 54, Periodic Message

Counter) associated with the multiple time domains and operating at independent clock

rates ((note page 88, wherein Nexus discloses *"Multi-Processor: The Nexus standard*

allows for embedded processor implementations that comprise multiple clients to utilize

a single AUX, depending upon the transfer bandwidth requirement for the application.

The AUX may be designated for a single client or shared by multiple clients on the

embedded device during runtime. Messages transmitted via the AUX shall contain

information defined by the Nexus standard indicating which client generated the

message.")

Also note page 87-88, Table 7-2 and Table 7-3, *"Independent clock allows for*

faster or slower transfer rate than with system clock reference."

and sorting debug information in time ordered sequence, the debug information

being associated with a timestamp provided from one of the multiple time domains (Fig.

6D, element 148).

As per claim 32, Nexus discloses providing the debug information via a debug message (page 56, Debug Status Message).

As per claim 33, Nexus discloses implementing the debug messages as at least one of a program trace message, a data trace message and a watchpoint message (page 52, Table 6-1).

As per claim 34, Nexus discloses generating the multiple timestamp messages by:

providing control information corresponding to each of multiple time domains, the control information indicating when a timestamp message for each of the multiple time domains is to be generated (page 63-64)

determining when a time domain event that requires generation of a timestamp message occurs in any one of the multiple time domains and generating a timestamp message corresponding to a predetermined one of the multiple time domains in response to determining that the time domain event occurred (page 63, Message Occurrence) and (note page 88, wherein Nexus discloses "*Multi-Processor: The Nexus standard allows for embedded processor implementations that comprise multiple clients to utilize a single AUX, depending upon the transfer bandwidth requirement for the application. The AUX may be designated for a single client or shared by multiple clients on the embedded device during runtime. Messages transmitted via the AUX shall*

contain information defined by the Nexus standard indicating which client generated the

message.")

Also note page 87-88, Table 7-2 and Table 7-3, "*Independent clock allows for*

faster or slower transfer rate than with system clock reference."

Response to Arguments

Applicant's request for reconsideration of the finality of the rejection of the last

Office action is persuasive and, therefore, the finality of that action is withdrawn.

Applicant's arguments with respect to claims 11-34 have been considered but are

moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Elmira Mehrmanesh whose telephone number is (571)

272-5531. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone.

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100